Tests

| Attribute | Products applied to | Examples of tests | Possible responses to test |
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| Texture or cell structure | Baked products including breads | Photocopy a slice of the product. Set a norm reference to compare it against. | Increase the time the bread is kneaded or proved  Add gluten or use a flour with a higher gluten content  Baked product –reduce mixing time  Choose a different of mixing implement e.g. spoon versus cake mixer |
| Viscosity | Sauces, custards | Draw circles and observe the spread of the mixture.  Pour mixtures through funnels or plastic cups with holes in and record the time it takes for the mixture to go through. | Heat longer or to a higher temperature  Beating –altering the length of time and the type of equipment used  Adding more thickening ingredients e.g. cornflour arrowroot |
| Set | Jellies, jams, baked custards | Use a stick with a washer on it placing weights on this until the surface breaks | Heat the mixture longer and to a higher temperature  Add pectin cornflour  Jellies – Use a muslin with a more open weave that leaves more of the fruit in the jelly  Determining the right stage to harvest fruit Custard- alter the choice of raw material e.g. egg or thickening ingredients such as cornflour or arrowroot |
| Volume | When beating air into mixtures such as egg whites, meringues.  The finished volume of baked product e.g. cake | Measure the volume using a cylinder. (E.g. plastic spouting tube) Compare the volume achieved using different beating equipment e.g. whisk, hand beater, planetary mixer and determine which suits the requirements of the product.  Use seed displacement to measure volume:  use a cylinder/box larger than the sample to measure the volume of solid food products based on the amount of seed displaced.  Cake volume can be measured in tins before and after baking to measure the volume increase. | Meringues-beat more, add the sugar slower, choose different equipment –e.g. hand held beater, whisk, planetary mixer  Baked products –mix less, check oven up to the correct temperature when the product is placed in the oven, check the time between placing the mixture in the tin and the time it is put in the oven (baking powder has a limited activation time)  Change the size of tin.  Change the amount of raising agent.  Check the baking soda is mixed correctly to activate.  Check the time butter and sugar are beaten for a butter cake. |
| Thickness | Pastry cases and finished products such as pies, shortbread, slices, biscuits | Measure with calipers | Alter the amount it is rolled out, the size of mixture per portion, the amount of material made. |
| Coating | Enrobing with chocolate or icing.  Crumbing. | Weigh the product before and after it is enrobed or measure the area of choux pastry still showing through.  This could also be combined with a sensory test using the Just right scale.  The preferred viscosity of the chocolate coating prior to application could be measured- the best viscosity to ensure the required coverage.  Crumbing- visual check for evenness of coating, shake the coated product and measure how much of the coating sticks.  Weigh the product before and after crumbing to measure the weight of coating adhered.  Determine the yield of coating from the weight of coating ingredients and the number of products coated. | Increase the viscosity of chocolate by using specialist ingredients such as alginate xanthum gums or decrease using a specialised emulsifier or oil.  Review the different layers and determine if these are the correct combination-e.g. flour, cornflour, egg, milk, crumb.  Check the order of applying coating. ingredients e.g. flour then egg then crumb  Check the equipment and containers used in coating.  Check if chilling assists in coating adherence.  Check cooking temperature and impact on absorption of fat. Crispiness and fat content can be contestable factors in producing deep-fried products. Measure against the specifications determined for the particular product.(This could include specifications for fat content)  Review crumbing materials- cornflakes, rice bubbles, polenta are some examples of alternative crumbing ingredients. |
| Water content | Any products baked to dry them out e.g. biscotti | To determine moisture content of a product dry the final product in the oven until it loses no more weight and then calculate the % moisture in the finished product.  Note this is different to water activity which requires a specialised piece of equipment but it is still useful information for most products | Increase or decrease time in oven, alter temperature, check moisture level of uncooked mixture and add or decrease the amount of liquid added. |
| Tenderness | Baked products e.g. cakes | Measure the amount the baked product sinks when a weight is put on it.  Measure how easy it is to break the product in half.  Measure using sensory testing | Check the mixing time, amount and type of fat, ratio of liquid to dry ingredients. |
| Bacterial count (only consider with NCEA level 3 students) | The facilities e.g. the bench, the equipment, the product, the result of different processing methods | Total plate count taken on a sample  Testing for certain organisms  If you have access to industry support or some training in microbiology this can provide very valuable information for high risk food processing decisions | Changing pH of product, heating to a higher temperature for the longer time or reducing time/temperature to improve product quality  Cooling product quicker after processing. Storage of product at cooler temperatures such as refrigeration or freezing.  Changing of product storage atmosphere e.g. removing air by vacuum. |